



12 November 2024

Electricity Authority

Via email: fsr@ea.govt.nz.

Tēnā koutou

Consultation Paper— Part 8 Code amendment proposal – Part 1

WEL Networks appreciates the opportunity to provide feedback on the Electricity Authority's consultation paper Consultation Paper— Part 8 Code amendment proposal – Part 1 (the consultation).

WEL Networks (WEL) is New Zealand's sixth largest electricity distribution company and is 100% owned by our community through our sole shareholder WEL Energy Trust. Our guiding purpose is to enable our communities to thrive, and we work to ensure that our customers have access to reliable, affordable, and environmentally sustainable energy.

We believe that extensive sector-wide alignment and coordination, involving policymakers, regulators, participants, and consumers is vital to an efficient future power system operation in New Zealand. This will require concerted efforts by many players to raise public awareness, improve data access, adapt technology standards, introduce flexible regulations, and establish effective national policy statements for the energy sector.

Should you require clarification on any part of this submission, please do not hesitate to contact me.

Ngā mihi nui

Michelle Allfrey

GM Commercial Engagement



WEL Networks' Submission

WEL Networks has some general comments which provide context for WEL's answers to consultation questions. Comments on the consultation questions are contained in Appendix A.

General comments

WEL Networks agrees with the proposed changes to asset testing for wind generation and dynamic reactive devices and the changes to requirements for frequency and voltage control systems.

FSR-003: Include distributors and energy storage systems as potential causers of under-frequency events

There are two instances of where distribution networks can potentially cause under frequency events:

- When reverse power flow through the GXP is occurring and a failure of distribution protection systems or circuit breakers to clear a distribution fault results in back up clearance from grid owner assets at the GXP effectively suddenly reducing the reverse power flow to zero.
- The restoration of controlled load (e.g. ripple control of hot water heating) following a period when load has been controlled following interruptible load operation for an UFE or when the distribution is managing load.

The interruption of reverse power flows from distribution networks to the transmission grid should be considered when the SO is procuring instantaneous reserves. Reverse power flows can be interrupted for an outage of the GXP (e.g. the tripping of all supply transformers) or following the failure of distribution protection systems or circuit breakers to clear a distribution fault resulting in back up clearance from grid owner assets at the GXP.

The loss of a large-scale ESS is likely a contingent event (affecting procurement of instantaneous reserves) while events caused by distributors is more likely to be considered an "other event" requiring no specific mitigation. The risk of a distribution caused UFE event does not increase the amount of instantaneous reserves required to be procured. The distributors face the risk of an under-frequency event charge but do not receive any rebate of under frequency event charges incurred by other parties.

The restoration of controlled load simultaneously across a number of GXPs resulting a sudden increase in demand that potentially could result in an UFE. This risk is easily managed by distributors by staggering the restoration of controllable load across their GXPS.

It is possible in the future that aggregators or owners of large amounts of small DG connected to distribution networks could cause an underfrequency event through the operation of their DG. Consideration should be given to aggregators and owners of large amounts of distributed DER being included as potential causers of under frequency events.

FSR-007: Treat energy storage systems as only generation for the purposes of Part 8

The Authority proposes to amend Part 8 of the Code to treat ESSs above the 30 MW excluded generating station threshold in clause 8.21(1) of the Code as generation for the purposes of Part 8.

The proposal creates two classes of BESS:

1. Grid connected BESS and embedded BESS above the threshold of 8.21 (1) – currently 30 MW.



2. Embedded BESS below the threshold in 8.21 (1).

Under the proposal, the first class will not face AUFLS obligations or costs while the second class will face AUFLS related costs.

Embedded BESS below the threshold in 8.21 (1) when charging will contribute to the distributor's AUFLS requirements. The distributor will likely seek back-to-back mitigation of the AUFLS obligation through the connection agreement. This creates an additional barrier to entry for embedded BESS below the threshold in 8.21 (1).

We suggest that the reference to the threshold in 8.21 (1) be changed to 8.21 (2) (currently 1 MW) as appropriate to the effect that all embedded BESS are treated equally.

FSR-009: Clarify the Code's fault ride through requirements

We question why this problem has suddenly appeared now given that the existing fault ride through obligations have been in place for the better part of a decade and were under development for many years before that.

We believe further information is needed assess the situation and the right way forward.

We do not agree with the proposal in that the proposal provides special treatment based on technology characteristics for some asset owners. We note that no other technology gets such special treatment in respect of other obligations.



Appendix A

FSR-003: Include distributors and energy storage systems as potential causers of under-frequency events

Questions	Comments
Q3.1. Do you support the Authority's proposal to amend the definition of 'causer' in clause 1.1 of the Code so that it refers to the action that results in a UFE, including an increase in electricity demand (load), and the consequential amendments to clauses 8.60 to 8.66, including proposed new clause 8.64A?	<p>No. Further assessment is required.</p> <p>The probability of ESS and distributors causing UFE should be considered and the appropriate mitigating actions should be identified.</p>
Q3.2. Do you see any unintended consequences in making such an amendment? Please explain your answers.	<p>The SO policy statement may need to be updated following the definition change.</p> <p>The loss of a large-scale ESS is likely a contingent event while reverse power related events caused by distributors is more likely to be considered an "other event".</p>
Q3.3. Do you agree the proposed Code amendment is preferable to the other options identified? If you disagree, please explain why and give your preferred option in terms consistent with the Authority's main statutory objective in section 15 of the Electricity Industry Act 2010.	<p>No. A complete review of the UFE management regime will likely be required in the future given the shift towards inverter-based generation and use of large-scale energy storage. The longer such major reviews of the EIPC are deferred the greater the urgency becomes, and the greater the effort required.</p>
Q3.4. Do you agree with the analysis presented in this Regulatory Statement? If not, why not?	<p>An alternative option not considered would be to retain the status quo.</p> <p>A more detailed assessment of the probabilities of demand and energy storage causing UFE is required so that the benefits and in particular the net benefit of the proposal can be better assessed.</p> <p>A large ESS may have similar probabilities of causing an UFE by tripping while discharging. The likelihood of other demand causing an UFE is much lower.</p>



FSR-007: Treat energy storage systems as only generation for the purposes of Part 8

Q7.1. Do you support the Authority's proposal to amend the Code to treat ESSs as generation for the purposes of Part 8?	<p>No, not in its present form.</p> <p>The main reason for not allowing equivalence arrangements for BESS in terms of AUFLS seems to be the system operator's inability to easily incorporate BESS functionality within its market tools.</p>
Q7.2. Do you see any unintended consequences in making such an amendment? Please explain your answers.	<p>The proposal creates two classes of BESS:</p> <ol style="list-style-type: none"> 1. Grid connected BESS and embedded BESS above the threshold of 8.21 (1). 2. Embedded BESS below the threshold in 8.21 (1). <p>Under the proposal, the first class will not face AUFLS obligations or costs while the second class will face AUFLS related costs.</p> <p>Embedded BESS below the threshold in 8.21 (1) when charging will contribute to the distributor's AUFLS requirements. The distributor will likely seek back-to-back mitigation of the AUFLS obligation through the connection agreement.</p> <p>This creates an additional barrier to entry for embedded BESS below the threshold in 8.21 (1).</p> <p>Should the requirements of 8.24 (Load shedding obligations to support voltage) in respect of grid connected BESS be reviewed as well?</p>
Q7.3. Do you agree the proposed Code amendment is preferable to the other options identified? If you disagree, please explain why and give your preferred option in terms consistent with the Authority's main statutory objective in section 15 of the Electricity Industry Act 2010	<p>We suggest that the reference to the threshold in 8.21 (1) be changed to 8.21 (2) as appropriate to the effect that all embedded BESS are treated equally in respect to direct or indirect AUFLS obligations.</p>
Q7.4. Do you agree with the analysis presented in this Regulatory Statement? If not, why not?	<p>No. The proposed amendment does not promote competition in the electricity.</p>

FSR-009: Clarify the Code's fault ride through requirements



<p>Q9.1. Do you support the Authority's proposal to amend the Code to allow a machine-based synchronous generating unit to be deemed compliant with the Code's FRT requirements if full compliance is not possible due to the generating unit's inherent stability characteristics and the generator has taken all reasonable measures to support grid stability taking into account the generating unit's inherent stability characteristics?</p>	<p>No. Further investigation is required.</p> <p>This is special treatment based on technology characteristics for which no other technology gets in respect of other obligations.</p> <p>We question why this problem has suddenly appeared now given that the existing fault ride through obligations have been in place for the better part of a decade and were under development for many years before that.</p>
<p>Q9.2. Do you see any unintended consequences in making such an amendment? Please explain your answers.</p>	<p>Will the performance shortfall of these machines increase the amount of IR the system operator needs to procure?</p> <p>A system fault that causes an amount of non-compliant generation to drop off should be treated as a risk by the system operator when procuring instantaneous reserves.</p> <p>Note the same risk applies to area wide PV generation drop off during transmission faults.</p>
<p>Q9.3. Do you agree the proposed Code amendment is preferable to the other option identified? If you disagree, please explain why and give your preferred option in terms consistent with the Authority's main statutory objective in section 15 of the Electricity Industry Act 2010</p>	<p>No. More information is required.</p> <p>It is not certain how many machines are affected or whether the shortfall can be more easily managed through dispensations.</p> <p>The alternative option of developing separate FRT curves for machine-based synchronous generating unit and for IBR-based generating units looks to be a more effective method (rather than a blanket dispensation for machine-based synchronous generation) so the status quo should remain until this option is investigated.</p>
<p>Q9.4. Do you agree with the analysis presented in this Regulatory Statement? If not, why not?</p>	<p>No. Insufficient detail has been provided to allow an assessment of the analysis.</p>

